

PREVENTING EMERGING INFECTIOUS DISEASES

*Addressing
the Problem of
Diseases of Pregnant Women
and Newborns*



*A Strategy for the
21st Century*

CDC
CENTERS FOR DISEASE CONTROL
AND PREVENTION

Babies.

Beautiful, healthy babies.



And healthy, happy moms.

Each year, 6 million pregnancies and 4 million live births occur in the United States. Infectious diseases pose a silent yet serious health threat to many of these women and their babies. Infection acquired during pregnancy, while sometimes inapparent and asymptomatic in the mother, can be devastating to the health of the infant. Such infections may lead to preterm birth and subsequent low birth weight and increase the infant's chances of developing a life-threatening illness. The financial and emotional costs of these infections are staggering. CDC, in collaboration with other government agencies, industry, academia, and other health partners, has developed a plan with four goals specifically designed to limit the harm caused by infectious agents acquired during pregnancy and early infancy.

Infectious diseases are a continuing menace to all segments of society, regardless of age, gender, lifestyle, ethnic background, and socioeconomic status. They cause suffering and death and impose an enormous financial burden on society. Because we do not know what new diseases will arise, we must always be prepared for the unexpected. The Centers for Disease Control and Prevention (CDC) has recently released a plan, *Preventing Emerging Infectious Diseases: A Strategy for the 21st Century*, which describes steps that we can take to move toward the realization of CDC's vision of a world in which all people join in a common effort to address today's emerging infectious diseases and prevent those of tomorrow.

The national emerging infectious disease plan targets specific categories of emerging infectious disease problems and particular groups of people who are at special risk. The nine target areas are antimicrobial resistance; foodborne and waterborne diseases; diseases transmitted through blood transfusions or blood products; chronic diseases caused by infectious agents; vaccine development and use; diseases of people with impaired host defenses; diseases of pregnant women and newborns; and diseases of travelers, immigrants, and refugees. This booklet focuses on diseases of pregnant women and newborns.

Public health activities for the nine target areas are organized under four broad, intersecting goals: surveillance and response, applied research, infrastructure and training, and prevention and control.

CDC RESPONDS

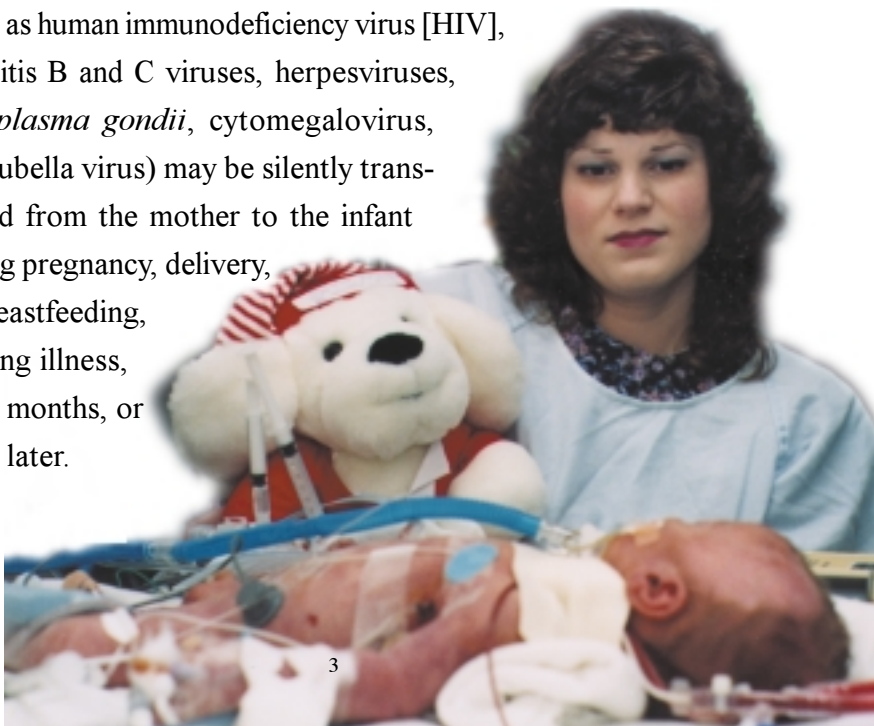
The goal of surveillance and response is to detect, investigate, and monitor emerging pathogens, the diseases they cause, the factors influencing their emergence, and to respond to problems as they are identified. For applied research, the goal is to integrate laboratory science and epidemiology to better understand and optimize public health practices for the prevention and control of emerging infectious diseases. The goal of infrastructure and training is to strengthen the underlying foundation of public health surveillance, research, and programs by supporting the planning, delivery, and evaluation of public health activities and practices. Finally, the goal of prevention and control is to ensure prompt implementation of prevention and control strategies and enhance communication of public health information about emerging infections.

The Centers for Disease Control and Prevention Responds

The CDC's National Center for Infectious Diseases (NCID) has developed specific public health activities that address the nine target areas. Many of the activities build on existing efforts or are in the planning stages. Others represent new efforts. These activities are described in individual booklets for each target area.

PREGNANT WOMEN AND NEWBORNS

When a pregnant woman acquires an infection, the health of both the woman and her fetus can be endangered. Even some infections that are inapparent and asymptomatic to a pregnant woman can increase an infant's risk of prematurity, low birth weight, long-term disability, or death. For some diseases, such as syphilis, congenital gonococcal ophthalmia, and congenital rubella syndrome, the association between maternal infection and infant disease has been known for many years. For others, such as bacterial vaginosis and group B streptococcal infection, the full impact on the infant has only recently been understood. Certain microbes that cause infection in parts of the body distant from the genital tract, including bacteria that cause periodontal disease, are associated with higher risk of premature birth. In addition, some microbes (such as human immunodeficiency virus [HIV], hepatitis B and C viruses, herpesviruses, *Toxoplasma gondii*, cytomegalovirus, and rubella virus) may be silently transmitted from the mother to the infant during pregnancy, delivery, or breastfeeding, causing illness, days, months, or years later.



CDC ACTIVITIES

Unfortunately, access to, and utilization of, prenatal care are lowest in poor communities, which have the highest rates of maternal infections. Groups that often receive inadequate prenatal care include undocumented immigrants, inner-city residents, and people who live in rural communities. Although many infectious diseases of newborns and pregnant women are common in the United States, the global impact of infections in pregnancy is enormous. When pregnant women suffer malaria during pregnancy, for example, their babies are much more likely to be born with low birth weight and to die during infancy.

NCID Activities for Addressing Diseases of Pregnant Women and Newborns

In collaboration with many private and public partners, NCID plans to conduct numerous public health activities to address diseases of pregnant women and newborns. While some of the activities described below build on existing efforts, others represent new efforts.

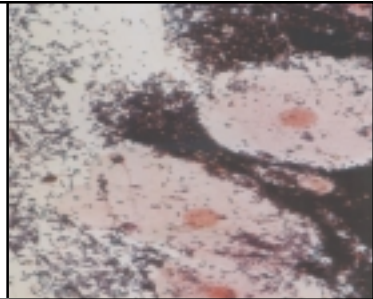
Goal I: Surveillance and Response

- ◆ Conduct surveillance to define and quantify the burden of infectious diseases in newborns and pregnant women and the incidence and consequences of complications due to maternal infections.



PREGNANT WOMEN AND NEWBORNS

Figure 1: A microscopic view of the vaginal fluid of a woman with bacterial vaginosis (BV), showing the overgrowth of bacteria typical in BV. This condition is associated with such adverse conditions as premature labor, amniotic fluid infection, endometritis, uterine infection, and premature birth.



- ◆ Conduct surveillance to determine which infections occur because prevention measures are not offered or fail to work and which occur because the infectious agent has changed (for example, developed drug resistance).

Goal II: Applied Research

- ◆ Develop, evaluate, and integrate methods to prevent infections among newborns and pregnant women.
- ◆ Develop and evaluate rapid screening methods and diagnostic tests.
- ◆ Conduct behavioral research to determine why prevention strategies succeed or fail.

Goal III: Infrastructure and Training

- ◆ Assist state, local, and territorial health departments in providing integrated disease prevention programs that help pregnant women protect themselves against many kinds of perinatal infections.



CDC ACTIVITIES

Goal IV: Prevention and Control

- ◆ Identify and evaluate innovative ways of preventing infections during pregnancy, especially in populations that are not effectively reached by the current health care system.
- ◆ Conduct demonstration projects to implement and evaluate programs for preventing multiple perinatal infections. These projects will incorporate ways to overcome common barriers to the implementation of prevention measures and identify the key components and measurable indicators of successful interventions.
- ◆ Combine successful program elements from demonstration projects into national programs to prevent perinatal infections.

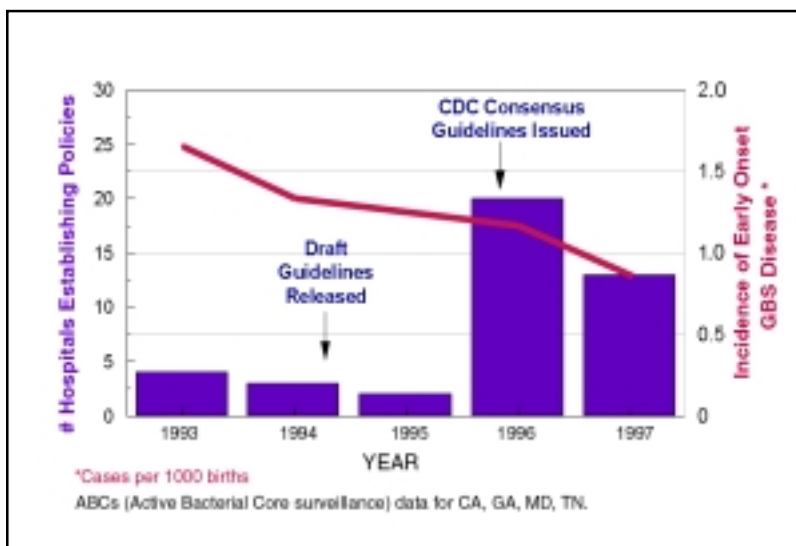
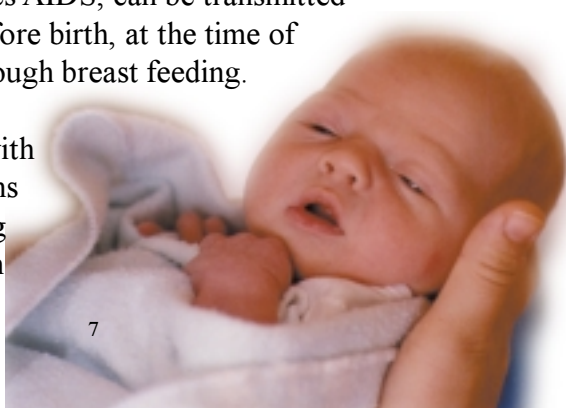


Figure 2: Number of hospitals adopting group B streptococcal (GBS) policies and the declining incidence of early onset group B streptococcal disease, by year, in four areas of the United States.

HARMFUL INFECTIONS

- ◆ *Listeria*, found in unpasteurized milk products, undercooked poultry, and prepared meats, such as hot dogs and sandwich meats, can cause life-threatening blood infections and meningitis in newborns.
- ◆ *Toxoplasma*, found in undercooked meat, unwashed fruits and vegetables, and in cat feces, can cause blindness, mental retardation, and hearing loss in babies. Some children can develop brain or eye problems years after birth.
- ◆ Group B streptococcus, a bacterium found in the intestines and on the genitals of about one in five pregnant women, can cause dangerous infections in the blood, spinal fluid, and lungs of babies born to mothers carrying the bacteria without symptoms.
- ◆ Hepatitis B is a serious infection of the liver. The hepatitis B virus can pass from mother to baby at birth unless preventive medication and vaccine are given to the newborn.
- ◆ Bacterial vaginosis (BV), a disturbance in the normal bacteria in the genital tract, occurs in one in five pregnant women. The presence of BV during pregnancy has been linked to premature delivery as well as postpartum maternal infection.
- ◆ HIV, the virus that causes AIDS, can be transmitted from mother to baby before birth, at the time of birth, and after birth through breast feeding. Treatment of pregnant women and newborns with antiretroviral medications is effective in reducing the risk of HIV infection in these babies.

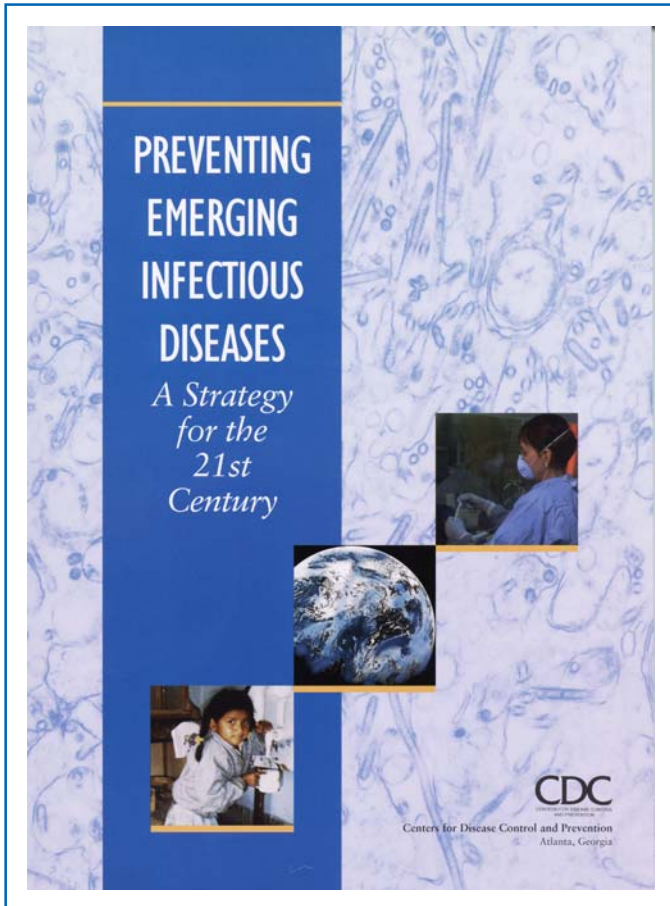


MORE INFORMATION



- ◆ Web site for the complete plan, *Preventing Emerging Infectious Diseases: A Strategy for the 21st Century*:
www.cdc.gov/ncidod/emergplan
- ◆ Voice Fax for CDC (receive information on various diseases by voice message or printed fact sheets):
1-888-CDC-FAXX (1-888-232-3299)
- ◆ Web site for Infectious Diseases:
www.cdc.gov/ncidod/diseases
- ◆ Web site for the CDC's Office of Women's Health:
www.cdc.gov/od/owh/whhome.htm
- ◆ Web site for Hepatitis:
www.cdc.gov/ncidod/diseases/hepatitis/index.htm
- ◆ Web site for HIV information:
www.cdc.gov/hiv
- ◆ Web site for Reproductive Health:
www.cdc.gov/nccdphp/drh
- ◆ Web sites for Fact Sheets on Diseases of Pregnant Women and Newborns:
www.cdc.gov/ncidod/dbmd/diseaseinfo/listeriosis_g.htm
www.cdc.gov/health/toxoplas.htm
www.cdc.gov/nchstp/dstd/facts_stds_and_pregnancy.htm
- ◆ Web site for influenza vaccine information:
www.cdc.gov//ncid/od/diseases/flu/fluvac.htm
- ◆ Web site for Group B Streptococcal Disease Prevention:
www.cdc.gov/ncidod/dbmd/gbs/index.htm





Copies of this 75-page plan are available from
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1600 Clifton Road, NE
Atlanta, GA 30333
www.cdc.gov/ncidod

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